

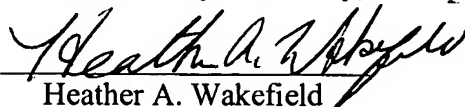
**APPLICATION FOR A UNITED STATES PATENT**  
**UNITED STATES PATENT AND TRADEMARK OFFICE**

Title: Dual Use Molding Tool

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By:   
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## **FIELD OF THE INVENTION**

This invention relates to the method of making low pressure injection molding (hereinafter referred to as LPIM) covered and high pressure injection molding (hereinafter referred to as HPIM) uncovered parts. More specifically, this invention  
5 relates to LPIM covered and HPIM uncovered parts from the same molding tool.

## **BACKGROUND OF THE INVENTION**

In the motor vehicle industry, currently high line vehicles are specified to have covered bolsters while low line vehicles are specified to have uncovered bolsters. Both high line and low line vehicles bolsters are generally specified to be of the same  
10 geometry. The low line vehicles utilize HPIM uncovered parts and the high line vehicles utilize LPIM covered parts. This has been a problem in the industry because it has been necessary to have separate tools for the low line and high line vehicles, even though they may be of the same geometry.

If a LPIM tool is used in making HPIM uncovered parts, then the molten plastic  
15 will vent from the unfilled shut-off edge. This venting will ultimately defeat the molding process. This invention solves that problem by utilizing a lifter that allows for both low pressure and high pressure injection molding from the same tool without having the problem of molten plastic vent from the unfilled shut-off edge.

## **SUMMARY OF THE INVENTION**

20 This invention relation to a dual use injection molding tool comprising an injection molding tool with techniques for both low pressure and high pressure injection molding for injection of material into a bolster and a lifter. This lifter further comprises a

retracted, non-functional position and an extended, functional position. The lifter is located on the periphery edge of the bolster.

When the injection molding tool is being used for LPIM, the lifter is in its retracted, non-functional position. When the injection molding tool is being used for HPIM, the lifter is in its extended, functional position. Utilizing this lifter will prevent the common venting problem that typical injection molding tools encounter when the tool is used form both LPIM and HPIM parts.

This invention may reduce the number of bolster or other covered/non-covered part tooling by as much as 50%. This dual use injection molding tool when used for non-covered bolsters can be used again to provide covered bolsters later in the parts program with the need for additional tooling. Ultimately, this dual use injection molding tool reduces costs from double-tooling and from possible costs that may accrue in correcting the problem of material, such as molten plastic, vents from the unfilled shut-off edge.

#### **DETAILED DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a view of the dual use injection molding tool in its LPIM position.

FIG. 2 is a detailed view of the dual use injection molding tool in its LPIM position.

FIG. 3 is a view of the dual use injection molding tool in its HPIM position.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

The invention relates to an injection molding tool capable of performing both LPIM and HPIM techniques. This dual use injection molding tool comprises an injection molding tool 8 with techniques for both low pressure and high pressure injection molding of material into a bolster 14 and a lifter 10. This lifter 10 further comprises a retracted,

non-functional position as seen in FIG. 1 and FIG. 2 and an extended, functional position as seen in FIG. 3. The lifter 10 is located on the periphery edge of the bolster 14.

Referring to FIG. 1 and FIG. 2, the lifter 10 is in its retracted, non-functional position. In this position, the injection molding tool 8 will properly perform the LPIM functions. Cover-stock 12 will be easily added to produce the desired effect for high-line vehicles.

Referring to FIG. 3, the lifter 10 is in its extended, functional position. This lifter 10 is moved and locked into this extended, functional position. This allows the same injection molding tool 8 that was used for LPIM to be used for HPIM. The lifter 10, will prevent the material, usually molten plastic, that has be injected from venting into the unfilled shut-off edge that usually will defeat the molding process.

By utilizing a lifter 10 in conjunction with an injection molding tool 8 that is capable of performing both LPIM and HPIM functions, both covered and uncovered parts can be easily made from the same injection molding tool 8.

In its preferred embodiment, the lifter 10 will be able to be moved and locked into either the retracted, non-functional or extended, functional position at the start of the part run. That occurs when the injection molding tool 8 is in between the LPIM and HPIM mode.

This dual use injection molding tool avoids double-tooling and allows the same injection molding tool 8 to be used to produce two types of parts, covered and uncovered. This dual use injection molding tool may reduce the number of bolster or other cover/non-covered part tooling. This significantly reduces the costs that additional tooling may have.

The above presents a description of the best mode contemplated for carrying out this invention. The claims should not be read as limited to the described order or elements unless stated to that effect. Therefore, all embodiments that come with the scope and spirit of the following claims and equivalents thereto are claimed as the

5 invention.